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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to improvement of an image forming system which reads a manuscript picture and forms the picture based on the read image data.

[0002]

[Description of the Prior Art]The cases where many of manuscripts copied by a copying machine exist on the memory in a personal computer or a network are increasing in number with the spread of personal computers (it is written as a personal computer below) etc. It is also a fact under such a situation that the opportunity of the signal transduction by electronic intelligence, such as an E-mail, is increasing. On the other hand, there are many opportunities of the signal transduction by a paper, and the opportunity of a copy is also still increasing them in connection with this.

[0003]However, the manuscript copied based on the manuscript outputted to the paper never escapes image quality deterioration. Since the halftone image and character image in which character differs on a record special feature with a color picture especially were intermingled, faithful reappearance of these halftone images and a character image was difficult.

[0004]In JP,8-331362,A, it adds to a copied image in the state of being hard to identify visually the so-called image area recognition signal for identifying the imaging range where recording characteristic top character differs in order to prevent such image quality deterioration, and the method of reducing image quality deterioration with this image area recognition signal is proposed. However, the image quality deterioration of a color picture is not too escaped by this method. When 3 times and a copy are repeated especially twice, large image quality deterioration will be caused.

[0005]While memorizing the image data read in the manuscript picture used as a copy object in this JP,8-331362,A to a file server etc. by a predetermined file name (for example, manuscript identification number), The method of adding a manuscript identification number to the picture formed based on this read image data in the state of being hard to identify visually is proposed. That is, when the manuscript used as a copy object is a manuscript in which the manuscript identification number was added, the manuscript identification number added to this manuscript is read, from this read manuscript identification number, the image data corresponding to this manuscript identification number is read, and a picture is formed based on this read image data. According to this method, by the copy based on the manuscript in which the manuscript identification number is added, omitting image quality deterioration becomes that there is nothing. However, the problem of the image quality deterioration in the stage (the first stage) which adds a manuscript identification number will still remain.

[0006]In this JP,8-331362,A, text data or description language data is embedded at a copy, and the method of developing image data based on this embedded information, and reproducing faithfully is also proposed. However, since text data or description language data becomes the remarkable amount of information, it is difficult to add in the state of being hard to identify visually. Although the so-called two-dimensional bar code is known as what records a lot of information, since an unnatural pattern appears on a manuscript, by a two-dimensional bar code,

it is not valid as formal documents. And the problem of the image quality deterioration in the stage (the first stage) which adds text data or description language data still remains.

[0007]In JP,7-28928,A, the method of recording the information about a manuscript picture on a manuscript is proposed using the recording method which used the light absorption characteristics of wavelength areas other than a light range. However, the special recorder for recording information by such a recording method and the special reader which read the information recorded by such a recording method and which can be folded were needed, and there was a problem that inconvenience arose in a cost aspect. And the problem of the image quality deterioration in the first stage still remains.

[0008]In JP,7-30696,A, the picture information load apparatus which codes and embeds digital information into image data is proposed. that is, a bar code -- a class -- the bottom -- reading -- I am easy -- code information is recorded on the same space, based on this code information, it superimposes on image information and an image output is carried out. By recording such code information on the 1st page of a document, and reading this 1st page as a like, source image data is ordered from picture file data, and the device which carries out a print output is also known. With this device, code information is recorded in the state of being visible, and it is not valid as formal documents. Other than the manuscript of a main part, the special document in which code information was recorded is needed, management becomes complicated, and it is not user-friendly.

[0009]Since code information can add by handwriting, there is an advantage, like control other than the usual copy is also attained, but it may be abused. Therefore, in actual management, the inconvenience of the same copy as an original copy overflowing against a manuscript maker's will arises, for example.

[0010]Although the electronization of information progresses, there are still many opportunities to circulate documents. In this case, the information, including a check, a recognition seal, or a sign, which shows a circulation settled may be added to circulation documents. When copying such circulation documents, its business may be done with the copy of original circulation documents, but the copy of the circulation documents in which additional information was added may be required. A conventional example which was described above had the problem that it could not reply to such a demand.

[0011]

[Problem(s) to be Solved by the Invention]As described above, in the conventional copying machine, there was a problem that an original manuscript and the manuscript of the image quality (equal compared with an original manuscript) of the level were unreproducible, by the handiness of copy feeling. In particular, when an original manuscript is a color, this problem appears notably.

[0012]In the conventional copying machine, there was a problem that a flood of the manuscript of the image quality near the original manuscript contrary to the manuscript donor's volition could not be prevented. Though the manuscript of the image quality near an original manuscript could be reproduced in the conventional copying machine, when a certain information was added to an original manuscript, reappearance of the manuscript of the image quality near the original manuscript included the added information was difficult.

[0013]In the conventional copying machine, when original circulation documents were electronized and saved, there was also a problem that could associate these original circulation documents and the circulation documents in which additional information was added, and they could not be managed.

[0014]The purpose of this invention is to accomplish in view of a situation which was described above, and to provide the image forming system shown below.

(1) The image forming system which can obtain the substantially same manuscript as an original manuscript by the handiness of copy feeling.

[0015](2) The image forming system which can prevent the flood of the substantially same manuscript as an original manuscript contrary to the original manuscript maker's volition.

(3) The image forming system which can obtain the manuscript in which the information which is the substantially same manuscript as an original manuscript, and was added to the original manuscript was reflected.

[0016](4) The image forming system which can associate and manage these original circulation documents and the circulation documents in which additional information was added when original circulation documents are electronized and saved.

[0017]

[Means for Solving the Problem]In order to solve an aforementioned problem and to attain the purpose, an image forming system of this invention is constituted as follows.

(1) An image forming system of this invention is provided with the following.

A file storing means which stores a file.

The 1st picture output means that outputs a picture which adds access information for accessing a file stored in this file storing means, and is formed based on this file.

A reading means which reads optically a picture outputted by this 1st picture output means, and outputs image data.

The 2nd picture output means that outputs a picture which reads a file stored in said file storing means based on access information extracted by extraction means to extract access information out of image data outputted from this reading means, and this extraction means, and is formed based on this file.

[0018](2) An image forming system of this invention is provided with the following.

A file storing means which stores a file.

Access information including address information which shows a storage location of a file for accessing a file stored in this file storing means, file name information which shows a file name, and password information which shows a password is added, The 1st picture output means that outputs a picture formed based on this file.

A reading means which reads optically a picture outputted by this 1st picture output means, and outputs image data.

An extraction means to extract access information out of image data outputted from this reading means, The 2nd picture output means that outputs a picture which reads a file stored in said file storing means based on access information extracted by this extraction means, and is formed based on this file, An identification information registration means to receive registration of identification information and to register this received identification information, Evaluate the degree of image quality deterioration of password information included in access information extracted by identification information input receptionist means to receive an input of identification information, and said extraction means, and by judgment based on a result of this evaluation. A control means which restricts when identification information which read-out of a file stored in said file storing means was permitted, and was registered into said identification information registration means, and identification information received by said identification information input receptionist means are in agreement, and performs an output of a picture by

said the last 2nd image forming means.

[0019](3) An image forming system of this invention is provided with the following.

A file storing means which stores a file.

The 1st picture output means that outputs a picture which adds access information for accessing a file stored in this file storing means, and is formed based on this file.

A reading means which reads optically a picture outputted by this 1st picture output means, and outputs image data.

An image data storing means which memorizes image data outputted from this reading means,

An extraction means to extract access information out of image data memorized by this image data storing means, Based on access information extracted by this extraction means, a file stored in said file storing means is read, The 2nd picture output means that outputs a picture formed based on image data which carries out overwrite of the image data formed based on this file on image data memorized by said image data storing means, and is obtained as a result of this overwrite.

[0020](4) A file storing means in which an image forming system of this invention stores a file, Access information for accessing a file stored in this file storing means is added, The 1st picture output means that outputs a picture formed based on this file, A reading means which reads optically a picture outputted by this 1st picture output means, and outputs image data, An image data storing means which memorizes image data outputted from this reading means, An extraction means to extract access information out of image data memorized by this image data storing means, Based on access information extracted by this extraction means, a file stored in said file storing means is read, The 2nd picture output means that outputs a picture formed based on image data which carries out overwrite of the image data formed based on this file on image data memorized by said image data storing means, and is obtained as a result of this overwrite, Image data which compares image data memorized by said image data storing means with image data formed based on a file read based on access information extracted from this image data, and is equivalent to a difference between both-images data, It has a control means which associate and this file is made to memorize.

[0021]As a result of providing the above-mentioned means, the following operations arise.

(1) According to the image forming system of this invention, the substantially same manuscript as an original manuscript outputted by the 1st picture output means is outputted by the 2nd picture output means. That is, the substantially same manuscript as this original manuscript is obtained based on an original manuscript.

[0022](2) According to the image forming system of this invention, it restricts to the time when predetermined conditions (the degree of image quality deterioration of an extracted password, coincidence of ID, etc.) were fulfilled, and a picture is outputted by the 2nd image forming device. Thereby, security in image formation processing based on a file is secured.

[0023](3) According to the image forming system of this invention, it is the substantially same manuscript as an original manuscript outputted from the 1st picture output means, and a manuscript in which information added to this original manuscript was reflected is outputted from the 2nd picture output means. That is, based on an original manuscript in which information was added, it is the substantially same manuscript as this original manuscript, and a manuscript in which information added to an original manuscript was reflected is obtained.

(4) According to the image forming system of this invention, information added to an original

manuscript and this original manuscript is related, and is managed.

[0024]

[Embodiment of the Invention] Hereafter, this embodiment of the invention is described with reference to drawings. Drawing 1 is a sectional view showing the outline composition of the image forming device concerning one gestalt of implementation of this invention. This image forming device has a duplication function as a copying machine, and a printer function as a printer.

[0025] As shown in drawing 1, the image forming device comprises the scanner part 1 as a reading means, and the printer section 2 as an image forming means. The scanner part 1 which reads the picture of a manuscript counters the manuscript stand covering 3 in the state where the manuscript stand covering 3 was had and closed in the upper part, and has the manuscript stand 4 which consists of transparent glass with which the manuscript D is set. The reflector 6 for making the manuscript D condense the light from the exposure lamp 5 and the exposure lamp 5 which illuminates the manuscript D laid in the manuscript stand 4 under the manuscript stand 4, the 1st mirror 7 that bends the catoptric light from the manuscript D leftward in a figure, etc. are allocated. These exposure lamps 5, the reflector 6, and the 1st mirror 7 are fixed to the 1st carriage 8. It is connected to the pulse motor which is not illustrated via the synchronous belt etc. which are not illustrated, the driving force of a pulse motor is transmitted, and the 1st carriage 8 is moved in parallel along with the manuscript stand 4.

[0026] In the direction to which it is shown to the catoptric light reflected by the left-hand side 7 in a figure, i.e., the 1st mirror, to the 1st carriage 8, the manuscript stand 4 and the 2nd carriage 9 provided movable in parallel are allocated via drive mechanism, for example, the synchronous belt, a DC motor, etc. which are not illustrated. In the 2nd carriage 9, the 2nd mirror 11 that bends caudad the catoptric light from the manuscript D guided by the 1st mirror 7, and the 3rd mirror 12 of each other that bends the catoptric light from the 2nd mirror 11 to the method of figure Nakamigi are arranged right-angled. The 2nd carriage 9 is moved in parallel along with the manuscript stand 4 at the rate of one half to the 1st carriage 8 while following on the 1st carriage 8.

[0027] In a field including the optic axis of the light turned up via the 2nd carriage 9, In the field which abbreviated-intersects perpendicularly with the optic axis of the light which the image formation lens 13 to which image formation of the catoptric light from the 2nd carriage 9 is carried out for predetermined magnification has been arranged, and passed the image formation lens 13, CCD series (optoelectric transducer) 15 which changes into an electrical signal, i.e., image data, the catoptric light to which convergence nature was given with the image formation lens 13 is arranged.

[0028] If a deer is carried out and the manuscript D on the manuscript stand 4 is made to condense the light from the exposure lamp 5 by the reflector 6, the catoptric light from the manuscript D will enter into CCD series 15 via the 1st mirror 7, the 2nd mirror 11, the 3rd mirror 12, and the image formation lens 13, and will be changed into image data here.

[0029] The picture into which the color of the printer section 2 was separated for every color component based on the method of decreasing and mixing the color of well-known, namely, yellow (yellow and the following indicate it as y) (a red kind.) Magenta hereafter, it is indicated as m -- cyanogen (the bluish purple and the following indicate it as c) And black (black and the following indicate it as k) It has the 1st thru/or the 4th image formation part 10y, 10m, 10c, and 10k which form the picture of four colors, respectively.

[0030] The conveyer style 20 containing the transportation belt 21 which conveys the picture for

every color formed of each image formation part in the direction of figure Nakaya seal a under each image formation parts 10y, 10m, 10c, and 10k is allocated. The transportation belt 21 is wound and stretched between the follower rollers 92 by which prescribed distance alienation was carried out from the driving roller 91 which rotates in the direction of arrow a by the belt motor which is not illustrated, and the driving roller 91, and an endless run is carried out with constant speed in the direction of arrow a. Each image formation parts 10y, 10m, 10c, and 10k are arranged in series along the transportation direction of the transportation belt 21.

[0031]Each image formation parts 10y, 10m, 10c, and 10k contain the photo conductor drums 61y, 61m, 61c, and 61k as image support formed in the direction with same peripheral face pivotable in the position which touches the transportation belt 21, respectively. The drum motor which is not illustrated for rotating each photo conductor drum with predetermined peripheral velocity is connected to each photo conductor drum, respectively.

[0032]The axis of each photo conductor drum 61y, 61m, 61c, and 61k is arranged so that it may intersect perpendicularly with the direction in which a picture is conveyed with the transportation belt 21, and the axis of each photo conductor drum is arranged at equal intervals mutually. In the following explanation, make the axial direction of each photo conductor drum into a scanning direction (the 2nd direction), and let be a vertical scanning direction (the 1st direction), the direction (the direction of figure Nakaya seal a), i.e., the hand of cut of the transportation belt 21, which a photo conductor drum rotates.

[0033]Around each photo conductor drums 61y, 61m, 61c, and 61k, The electrification units 62y, 62m, 62c, and 62k which extended to the scanning direction, The electric dischargers 63y, 63m, 63c, and 63k, the developing roller 64y which extended like the scanning direction, 64m, 64c, 64k, the lower churning rollers 67y, 67m, 67c, and 67k, The upper churning rollers 68y, 68m, 68c, and 68k, the transfer device 93y which extended like the scanning direction, 93m, 93c, 93k, the cleaning blades 65y, 65m, 65c, and 65k that extended like the scanning direction, and the \*\* toner recovery screws 66y, 66m, 66c, and 66k are arranged in order along the hand of cut of a corresponding photo conductor drum, respectively.

[0034]Each transfer device is allocated inside the position 21 which \*\*\*\* the transportation belt 21 between corresponding photo conductor drums, i.e., a transportation belt. The exposure points by the exposure device mentioned later are formed on the peripheral face of the photo conductor drum between an electrification unit and a developing roller, respectively.

[0035]The paper cassettes 22a and 22b which accommodated two or more sheets of recording forms P as an image forming medium which transfers the picture formed of each image formation parts 10y, 10m, 10c, and 10k under the conveyer style 20 are arranged.

[0036]Recording form P accommodated in the side which is an end part of the paper cassettes 22a and 22b, and approaches the follower roller 92 by the paper cassettes 22a and 22b (from the topmost part) The pickup rollers 23a and 23b which it takes out one sheet at a time are arranged. The resist roller 24 for adjusting the tip of the recording form P picked out from the paper cassettes 22a and 22b and the tip of y toner image formed in the photo conductor drum 61y of the image formation part 10y between the pickup rollers 23a and 23b and the follower roller 92 is arranged. The toner image (m, c, k) formed in other photo conductor drums 11y, 11m, and 11c is supplied to each transfer position according to the conveying timing of the recording form P which has the transportation belt 21 top conveyed.

[0037]Are between the resist roller 24 and the 1st image formation part 10y, and on both sides of the transportation belt 21 on the real target near the follower roller 92 on the periphery of the follower roller 92, The adsorption roller 26 which provides with electrostatic predetermined

adsorption power the recording form P conveyed to predetermined timing via the resist roller 24 is arranged. The axis of the adsorption roller 26 and the axis of the follower roller 92 are arranged in parallel mutually.

[0038]It is an end of the transportation belt 21, and from the driving roller 91, the position gap sensor 96 for detecting the position of the picture substantially formed on the transportation belt 21 on the periphery of the driving roller 91 on both sides of the transportation belt 21 near the driving roller 91 carries out prescribed distance alienation, and is arranged. The position gap sensor 96 is constituted by the photosensor of a transmission type or a reflection type.

[0039]It is on the periphery of the driving roller 91, and the conveyance belt cleaning device 95 from which paper, \*\*, etc. of the toner or the recording form P which adhered on the transportation belt 21 is removed is arranged on the transportation belt 21 of the downstream of the position gap sensor 96.

[0040]By heating the recording form P to prescribed temperature, in the direction in which the recording form P conveyed via the transportation belt 21 secedes from the driving roller 91, and is conveyed further, the toner image transferred by the recording form P is fused, and the anchorage device 80 which fixes a toner image to the recording form P is arranged at it. The fixing assembly 80 comprises the Hee \*\* RO 1 RA pair 81, the rollers 82 and 83 with oil \*\*, the web winding rollers 84, the web roller 85, and the web forcing roller 86. The toner formed on the recording form P is fixed to a recording form, and it is discharged by the paper ejecting roller pair 87.

[0041]The exposure device 50 which forms the electrostatic latent image whose color was separated on the peripheral face of each photo conductor drum, respectively has the semiconductor laser 60 by which emission control is carried out based on the image data (y, m, c, k) for every color the color of was separated in the image processing portion mentioned later. On the optical path of the semiconductor laser 60, the ftheta lenses 52 and 53 for amending and carrying out image formation of the focus of a laser beam reflected via the polygon mirror 51 which rotates a laser beam to the polygon motor 54 reflected and scanned, and the polygon mirror 51 are formed in order.

[0042]Between the ftheta lens 53 and each photo conductor drums 61y, 61m, 61c, and 61k, the 1st clinch mirror 55 (y.) that turns to the exposure position of each photo conductor drum the laser beam for every [ which had the ftheta lens 53 passed ] color, and bends it The 2nd and 3rd clinch mirrors 56 (y, m, c) and 57 (y, m, c) that bend further the laser beam bent by m, c, k, and the 1st clinch mirror 55y, 55m, and 55c are arranged. After the laser beam for black is turned up by the 1st clinch mirror 55k, it is guided at the photo conductor drum 61k, without going via other mirrors.

[0043]Then, with reference to drawing 2, the outline of the network containing each function of the image forming device shown in drawing 1 and this image forming device is explained.

Drawing 2 is a block diagram showing the outline of the network containing each function of an image forming device, and this image forming device.

[0044]As shown in drawing 2, the external interface 200 is formed in the image forming device. An image forming device and personal computer PC3 as a printer server are connected via this external interface 200. This personal computer PC3 is connected to the network, and two or more personal computers PC1 and PC2 are further connected to this network. The file created with these personal computers PC1 and PC2 can be printed out with an image forming device via network and personal computer PC3.

[0045]personal computer PC1 is shown in drawing 4 (a) -- as -- CPU211 -- a note is made and it

comprises 212, the indicator 213, the keyboard 214, etc. CPU211 manages control of the personal computer PC1 whole. The memory 212 memorizes the data of various programs etc. The indicator 213 displays a variety of information. The keyboard 214 receives various inputs. [0046]similarly, personal computer PC2 is shown in drawing 4 (b) -- as -- CPU221 -- a note is made and it comprises 222, the indicator 223, the keyboard 224, etc. CPU221 manages control of the personal computer PC2 whole. The memory 222 memorizes the data of various programs etc. The indicator 223 displays a variety of information. The keyboard 224 receives various inputs. [0047]similarly, personal computer PC3 is shown in drawing 4 (c) -- as -- CPU231 -- a note is made and it comprises 232, the indicator 233, the keyboard 234, etc. CPU231 manages control of the personal computer PC3 whole. The memory 232 memorizes the data of various programs etc. The indicator 233 displays a variety of information. The keyboard 234 receives various inputs. [0048]Again, it returns to explanation of the image forming device shown in drawing 2. The image formation device shown in drawing 2 comprises three CPUs, main CPU31 in the main control part 30, scanner CPU100 of the scanner part 1, and printer CPU110 of the printer section 2.

[0049]Main CPU31 performs two-way communication via printer CPU110 and share RAM35, main CPU31 returns directions of operation and broth and printer CPU110 returns state status. Printer CPU110 and scanner CPU100 perform serial communication, printer CPU110 returns directions of operation and broth and scanner CPU100 returns state status.

[0050]It is connected to main CPU31 and the navigational panel 40 comprises panel CPU41 which controls the whole, the liquid crystal display 42, and the printing key 43. The liquid crystal display section 42 has the touch panel 42a, and functions as an input part.

[0051]The main control part 30 is constituted by main CPU31, ROM32, RAM33, NVM34, share RAM35, image processing portion 36, page memory control-section 37, page memory 38, and printer font ROM121.

[0052]Main CPU31 controls the whole main control part 30. ROM32, the control program etc. are memorized. RAM33 memorizes data temporarily.

[0053]NVM(endurance random access memory: nonvolatile RAM)34 is the nonvolatile memory backed up by the battery (not shown), and when the power is turned off, it holds the data on NVM34.

[0054]Between main CPU31 and printer CPU110, share RAM35 is used in order to perform two-way communication. The page memory control section 37 memorizes or reads image data to the page memory 38. The page memory 38 has a field which can memorize the image data for two or more pages, and for every 1 page, the data which compressed the image data from the scanner part 1 is formed so that memory is possible.

[0055]The font data corresponding to printing data is memorized by printer font ROM121. Personal computer PC3 as a network controller, The role developed to image data using the font data memorized by printer font ROM121 in the resolution according to the data in which the resolution to which the printing data received via the network are added by these printing data is shown is borne.

[0056]The scanner part 1, The whole scanner part 1. CCD driver 103, the exposure lamp 5 and the mirrors 7 and 11 which drive ROM101 and RAM102 for data storage scanner CPU100 to control, a control program, etc. are remembered to be, and CCD series 15, and 12 grades. Rotation of the motor which moves. The scan motor driver 104 to control, The analog signal from CCD series 15. To a digital signal. The A/D conversion circuit to change. Dispersion in CCD series 15. Or the digital signal by which the shading compensation was carried out from the



shading correction circuit and shading correction circuit for amending change of the threshold level to the output signal from CCD series 15 resulting from the surrounding temperature change etc. It is constituted by the picture amendment part 105 which consists of a once memorized line memory.

[0057]The printer section 2, The whole printer section 2. The rotation of the polygon motor 54 of the laser driver 113 and the exposure device 50 which turns on and off luminescence by ROM111 and RAM112 for data storage printer CPU110 to control, a control program, etc. are remembered to be, and the semiconductor laser 60. The polygon motor driver 114 to control, the paper transportation part 115 which controls conveyance of the paper P by the conveyer style 20, the electrification unit 62y, It is constituted by the development process part 116 which performs electrification, development, and transfer using 62m, 62c, 62k, the developing rollers 64y, 64m, 64c, and 64k, and the transfer devices 93y, 93m, 93c, and 93k, the controlling fixation part 117 which controls the fixing assembly 80, and the option part 118.

[0058]The image processing portion 36, the page memory 38, the picture amendment part 105, and the laser driver 113 are connected by the image data bus 120. Then, with reference to drawing 3, the outline of the function included in the image processing portion 36 is explained. Drawing 3 is a block diagram for explaining the image processing portion 36.

[0059]As shown in drawing 3, the convert-colors part 36a, the image quality control circuit 36b, the gradation processing circuit 36c, 36 d of access information extracting circuits, the compression extension circuit 36e, etc. are established in the image processing portion 36.

[0060]The RGB image data transmitted from the scanner part 1 are inputted into the convert-colors part 36a. The convert-colors part 36a changes RGB image data into YMCK image data, and outputs it.

[0061]The YMCK image data outputted from the convert-colors part 36a is inputted into the image quality control circuit 36b. The image quality control circuit 36b detects a character area and a halftone area from YMCK image data, and performs processing according to each field to each field. For example, edge enhancement processing is performed to a character area, and moire suppressing processing is performed to a halftone area. That is, from the image quality control circuit 36b, the YMCK image data to which processing according to a character area and a halftone area was performed is outputted.

[0062]The YMCK image data outputted from the image quality control circuit 36b is inputted into the gradation processing circuit 36c. The gradation processing circuit 36c \*\*\*\*s in a character area and each halftone area, and performs gradation processing for \*\*. That is, from the gradation processing circuit 36c, the YMCK image data to which gradation processing was performed is outputted.

[0063]The YMCK image data outputted from the gradation processing circuit 36c is inputted into the printer section 2. And in the printer section 2, image formation processing is performed based on this YMCK image data.

[0064]36 d of access information extracting circuits are circuits which extract the access information mentioned later from the YMCK image data outputted from the convert-colors circuit 36a. Extraction of the access information by this circuit is explained in detail later. The compression extension circuit 36e is a circuit which performs compression and extension of image data.

[0065]Then, the various print-out and the various copies using the image forming device which explained [ above-mentioned ] are explained. In that case, it explains with reference to the flow chart shown in drawing 5 - drawing 12 if needed. Drawing 5 is a flow chart explaining the

processing in PC1 at the time of performing print-out with an image forming device based on the directions from PC1. Drawing 6 is a flow chart explaining the processing in PC3 at the time of performing print-out with an image forming device based on the directions from PC1. Drawing 7 is a flow chart explaining the processing in the image forming device at the time of performing print-out with an image forming device based on the directions from PC1. Drawing 8 is a flow chart explaining the copy processing in an image forming device. Drawing 9 is a flow chart for explaining original copy mode. Drawing 10 is a flow chart for explaining the copy mode corresponding to additional information. Drawing 11 is a flow chart for explaining postscript information filing mode. Drawing 12 is a flow chart for explaining the access permit decision processing according to a security level.

[0066]First, with reference to the flow chart of drawing 5, the processing in PC1 at the time of performing print-out with an image forming device based on the directions from PC1 is explained. Each processing in this PC1 shall be performed by CPU211 of this PC1.

[0067]In the image forming device of this invention, security can be raised by registering ID (identification information). Here, only the registration procedure of ID shall be explained and the security by this ID shall be explained in detail later. ID is received by PC1 and registered into an image forming device via this PC1 to PC3. If directions are received that an ID registration screen should be displayed via the keyboard 214 if it acts as Akira concretely (ST10, YES), according to directions, an ID registration screen will be displayed on the indicator 213 that this ID registration screen should be displayed (ST12). If ID is inputted via the keyboard 214 at this time, inputted ID will be registered into RAM33 of an image forming device via this PC1 to PC3 (ST14). Of course, when ID is already registered, or when ID registration is unnecessary, it is not necessary to perform this ID registration processing.

[0068]then, print-out of the files (a document file, a graphics file, etc.) which were alike with the application installed in PC1, and were created is explained. If print-out of the file created in PC1 is directed via a keyboard (ST16, YES), according to directions of this print-out, a printing mode selection picture will be displayed on the indicator 213 (ST18). The normal printing mode and the printing mode with access information are displayed on this printing mode selection picture, and it is selectable in one side of these modes by the keyboard 214.

[0069]A normal printing mode is the mode which prints out the picture formed based on the file of a print object. That is, this normal printing mode is the same as the conventional print-out. On the other hand, the printing mode with access information is the mode which prints out the access information for accessing the file of the picture formed based on the file of a print object, and this print management. This printing mode with access information is explained next in more detail.

[0070]If a normal printing mode is chosen in a printing mode selection picture (ST22, YES) (ST20, NO), print information including the file of a print object will be transmitted to PC3 from PC1 (ST24). Then, in PC1, reception of the response of the completion of print-out transmitted from PC3 will update a printing tube \*\* file with the printer driver installed in PC1 (ST36). (ST34) Information, including the printed-out file name, the time at which print-out was performed, the body number of the image forming device with which print-out was performed, etc., is recorded on a printing tube \*\* file. When the response of the completion of print-out is not received in PC1, or when the response of a print-out error is received in PC1, the display of a print-out error is made by the indicator 213 (ST38).

[0071]If a printing mode with access information is chosen in a printing mode selection picture (ST20, YES), an access information setting screen will be displayed on the indicator 213 (ST26).

In this access information setting screen, setting out of the access information inputted via the keyboard 214, i.e., the preservation destination of the file of a print object, (address information), the file name (file name information) of the file of a print object, a password (password information), etc. is received. And the file of a print object is saved in the preservation destination set up in this access information setting screen by the file name similarly set up in this access information setting screen. Setting out of a password shall be arbitrary and shall be later explained in detail about this password.

[0072]Completion of setting out of access information will save the file of a print object by the file name contained in the access information similarly set up in the preservation destination of the file included in the set-up access information (ST30). (ST28, YES) And print information including the access information (access information set up in the access information setting screen) for accessing to the file of a print object and this file is transmitted to PC3 from PC1 (ST32). Then, in PC1, reception of the response of the completion of print-out transmitted from PC3 will update a printing tube \*\* file with the printer driver installed in PC1 (ST36). (ST34) Information, including access information, the time at which print-out was performed, the body number of the image forming device with which print-out was performed, etc., is recorded on a printing tube \*\* file. When the response of the completion of print-out is not received in PC1, or when the response of a print-out error is received in PC1, the display of a print-out error is made by the indicator 213 (ST38).

[0073]Next, with reference to the flow chart of drawing 6, the processing in PC3 at the time of performing print-out with an image forming device based on the directions from PC1 is explained. Each processing in this PC3 shall be performed by CPU231 of this PC3.

[0074]In PC3, if the print information transmitted from the outside (for example, PC1) is received (ST40, YES), this received print information will be memorized by the memory 232 of PC3 (ST42). It is confirmed whether access information is included in this received print information. If access information is not included in this received print information (ST44, NO), image picture data is generated based on the file of the print object contained in this print information (ST48). Of course, access information is not included in the image picture data generated at this time.

[0075]If access information is included in the received print information (ST44, YES), it will be confirmed whether the adjacent spaces of the recording forms (copy paper etc.) set in the image forming device are white. When adjacent spaces set the recording form of colors other than white in an image forming device, it is necessary to input that such a recording form was set beforehand from the navigational panel 40 (strictly touch panel 42a) of an image forming device. It is transmitted to PC3 and the information about the recording form inputted from the navigational panel 40 is used for the color check of the adjacent spaces of a recording form.

[0076]When the adjacent spaces of the recording form set in the image forming device are white (ST46, YES) (when a recording form is a general copy paper), image picture data is generated based on the file and access information of a print object which were included in print information (ST50). At this time, access information is included in the image picture data generated. The picture formed based on this image picture data, i.e., a print-out result, is explained in detail later. In ST50, image picture data shall be generated so that the print-out result explained later may be obtained.

[0077]When the adjacent spaces of the recording form set in the image forming device are colors other than white, it is changed according to a luminosity color difference method with which (ST46, NO), and access information are disclosed by JP,7-123244,A. And image picture data is

generated based on the access information changed according to the file and luminosity color difference method of a print object which are contained in print information (ST52).

[0078]The image picture data generated by ST48, ST50, and ST52 is transmitted to an image forming device from PC3 (ST54). Then, in PC3, if the response of the completion of print-out transmitted from an image forming device is received (ST56), the response of this completion of print-out will be transmitted to PC1 (ST58), and the printing tube \*\* file of PC3 will be updated (ST60). Information, including access information, the time at which print-out was performed, the body number of the image forming device with which print-out was performed, etc., is recorded on this printing tube \*\* file. When the response of the completion of print-out is not received in PC3, or when the response of a print-out error is received in PC3, the display of a print-out error is made by the indicator 233 (ST62).

[0079]Next, with reference to the flow chart of drawing 7, the processing in the image forming device at the time of performing print-out with an image forming device based on the directions from PC1 is explained. Each processing in this image forming device shall be performed by main CPU91 of this image forming device.

[0080]In an image forming device, reception of the image picture data transmitted from PC3 as a printer server will perform print-out based on this received image picture data (ST72). (ST70, YES)

[0081]Here, the picture formed based on the image picture data transmitted from PC3, i.e., a print-out result, is explained. Especially the picture formed based on the image picture data generated by ST50 is explained. For example, as a yellow pattern, access information is recorded on the adjacent spaces a of a paper, as shown in drawing 13. That is, it is recorded on the outside of the imaging range b where the picture equivalent to the file of a print object is outputted. This access information is not only recorded on the adjacent spaces a of a paper. Along with about four sides of a paper, i.e., four sides of a paper, if it explains concretely, access information will be recorded on the adjacent spaces a of a paper. Therefore, access information will be recorded on four places of a paper at least. And all the access information recorded on these four places is recorded towards differing. It becomes possible to read access information in the manuscript set in the arbitrary directions by this. Reading of access information is explained in detail later.

[0082]Here, the output of a color picture is explained briefly. At the time of the output of a color picture, the body number for specifying the body of an image forming device is recorded by a yellow dot pattern as indicated by JP,4-294682,A. This yellow dot pattern is recorded all over a manuscript. This is because the image forming device with which this criminal act was made is specified, when what the copy is forbidden law is copied and that criminal act becomes clear. In the image forming device of this invention, since a body number and access information are printed by the same yellow pattern, in order to prevent both patterns lapping and becoming difficult to identify, access information is outputted to the adjacent spaces a, and a body number is outputted to the imaging range b.

[0083]According to this embodiment, the print rate of access information shall be set as about 1 / about [ 1000 or less ] so that access information can hardly recognize visually. The recording pattern of access information consists of three kinds of dot size width by the recording system which consists of 600dpi. That is, it is recorded with 1 dot width (the minimum pixel unit), 2 dot width, and 3 dot width. Address information and file name information are coded by the pattern of 2 dot width and 3 dot width. Password information is coded by the pattern of 1 dot width.

[0084]If the password information recorded by the pattern of 1 dot width is read by the scanner part 1, it will read with a phase (physical relationship of a sensor), and a level will change.

Therefore, by the generation copy which repeated the copy, the pattern in which password information is shown deteriorates extremely. That is, in a generation copy, reading of a password becomes difficult. Then, this degree of image quality deterioration (error rate) is evaluated, and it is judged from the degree of degradation whether it is an original copy. Although this is explained later, it is used as a means for controlling the print-out from the print file contrary to the file creator's intention.

[0085]Although the case where a password was recorded on the adjacent spaces a was explained, it may be made to record a password on the adjacent spaces a and the imaging range b here. By recording a password on the imaging range b, it becomes possible to assert copyright strongly.

[0086]Thus, visually, on the adjacent spaces a, access information is recorded in the state where it can hardly check, and the picture equivalent to the image data obtained from the file of a print object is formed in the imaging range b in them. If it does in this way, the manuscript which access information was added and was printed out will serve as the same image quality as the manuscript printed out by usual [ to which access information is not added ], and it will become possible to deal with it as usual documents at appearance.

[0087]Next, with reference to the flow chart of drawing 8, the copy processing in an image forming device is explained. Each processing in this image forming device shall be performed by main CPU91 of this image forming device.

[0088]Here, the processing which obtains a copy from the manuscript (a manuscript with access information is called hereafter) in which access information was recorded is explained. It is possible to prevent the original copy contrary to the volition of the maker of an original manuscript in the image forming device of this invention. Since this is realized, the security levels 1-4 can be set to this image forming device. These security levels 1-4 are explained in detail later. Here, only the setup steps of a security level are explained.

[0089]If directions are received via the navigational panel 40 of an image forming device that a security level setting screen should be displayed (ST80, YES), according to directions, a security level setting screen will be displayed on the liquid crystal display section 42 that this security level setting-out picture should be displayed (ST82). At this time, the security level set up via the touch panel 42a of the liquid crystal display section 42 is set as RAM33 (ST84). Of course, when the security level is already set up, or when setting out of a security level is unnecessary, it is not necessary to perform setting processing of this security level.

[0090]Then, selection of copy mode is needed. Selection of this copy mode is performed via the copy mode selection picture displayed on the liquid crystal display section 42. The original copy mode designation key which specifies the normal copy mode designation key which specifies normal copy mode, and original copy mode is displayed on a copy mode selection picture. A push on a normal copy mode designation key will perform a normal copy after this. A push on an original copy designation key will perform an original copy after this.

[0091]Normal copy mode is the mode which forms a picture based on the image data read in the manuscript picture. That is, this normal copy mode is the same as the conventional copy. On the other hand, original copy mode is the mode which forms a picture based on the image data which searches a file based on the access information read in the manuscript picture, and is obtained from this searched file.

[0092]A normal copy will be performed, if normal copy mode is specified by a normal copy mode designation key (ST86, NO) (ST88, YES) and directions of a copy start are given by the depression of a printing key (ST90, YES) (ST92). That is, a picture is formed based on the image data read in the manuscript picture.

[0093]If an original copy is specified by an original copy mode designation key (ST86, YES), the postscript copy mode designation key which specifies postscript copy mode as the liquid crystal display section 42 will be displayed. Here, an original copy will be performed if the printing key is pressed, without specifying postscript copy mode by a postscript copy mode designation key (ST94, NO) (ST96, YES) (ST98). A postscript copy will be performed, if postscript copy mode is specified by a postscript copy mode designation key (ST94, YES) and the printing key is pressed (ST100, YES) (ST102). The original copy performed by ST98 and the postscript copy performed by ST102 are explained in detail after this.

[0094]After a postscript copy is performed, the postscript information filing mode designation key which specifies postscript information filing mode as the liquid crystal display section 42 is displayed. Here, if postscript information filing mode is specified by a postscript information filing mode designation key (ST104), postscript information filing mode will be performed (ST106). This postscript information filing mode is explained in detail after this.

[0095]Next, original copy mode is explained with reference to the flow chart of drawing 9. First, the manuscript picture set to the prescribed position of the manuscript stand 4 is read by the scanner part 1 (ST110). Access information is extracted from the image data gained in connection with reading of this manuscript (ST112).

[0096]When access information cannot be extracted, (ST114, NO), and an error message are displayed on the liquid crystal display section 42 (ST130). Completion of extraction of access information will analyze the extracted access information (ST116). (ST114, YES) And access permit decision processing according to the security level set up beforehand is performed (ST118). The access permit decision processing according to this security level shall be explained in detail later, and detailed explanation is omitted here.

[0097]When access is not permitted by access permit decision processing (ST120, NO), an error message is displayed on the liquid crystal display section 42 (ST130). When access is permitted by access permit decision processing (ST120, YES), directions of the file search based on access information are outputted towards a printer server (PC3) (ST122).

[0098]The access information analyzed from the image forming device to PC3 is transmitted in file search. In PC3, a search of a file is performed based on this transmitted access information. In PC3, when the target file is not found, access information is transmitted to PC1 and a search of the file made into the purpose in PC1 is performed. If the target file is found, the image picture data generated from the access information of this file and this file will be transmitted to an image forming device. If image picture data is received at the image forming device side (ST124, YES), image formation processing will be performed based on this received image picture data (ST126). When image picture data is not received at the image forming device side, an error message is displayed on (ST124, NO), and a liquid crystal display section (ST130). When image formation processing of ST126 is performed, in connection with this image formation processing, the printing tube \*\* file of PC1 thru/or PC3 is updated.

[0099]The original copy mode explained here enables it to obtain the manuscript of the image quality of an original copy and the level. Even when an original copy is again performed based on the manuscript obtained by this original copy, the manuscript obtained serves as an original copy and image quality of the level. Therefore, this original copy mode enables it to always obtain the manuscript of the image quality of an original copy and the level.

[0100]Here, the extraction of access information explained [ above-mentioned ] is explained in more detail. Extraction of access information is realized by 36 d of access information extracting circuits as it explained [ above-mentioned ]. The access information in the state where it was

recorded on the manuscript comprises combination of the line of thickness which is different as shown in drawing 13. The thickness of a line changes to the 1st direction (scanning direction), and access information has become as arrangement which is located in a line with the same position to the 2nd direction (vertical scanning direction).

[0101]36 d of access information extracting circuits have one line buffer, and make detection of exact access information realizable by performing averaging processing to a vertical scanning direction by this line buffer. That is, it becomes detectable [ access information ], without being influenced by a noise. Thus, the access information expressed with the thickness of the line is changed into access information with a meaning.

[0102]Now, the signal which changes the average line number of a vertical scanning direction at this time, and is coded with line width is evaluated. Then, if average processing of several lines is performed by the data of 2-pixel width and 3-pixel width, there will be no value change.

However, by the data of 1-pixel width, it becomes an almost comparable stable signal by performing average processing more than double as compared with the data of 2-pixel width and 3-pixel width. This is a time of the manuscript (manuscript shown in drawing 13) outputted by the original printing mode being inputted. In the copy manuscript copied on the other hand based on the manuscript outputted by this original printing mode, the picture dot of this 1-pixel width becomes impossible [ the state of an out phase occurring probable and reappearing to whole surface homogeneity faithfully ] inphase with a relative position with a reading sensor.

Therefore, although there is also a portion by which part reappearance is carried out in part, people in general are not reproduced. Therefore, even if it performs average processing of two or more lines from a copy manuscript, the very stable signal is not acquired. Judgment of being a copy is attained by evaluating this noise level. From main CPU91, it is a signal from 36d of access information extracting circuits, and the signal with which the number of times of average processing of vertical scanning differs is acquired, and, specifically, the number of erroneous blocks with a line width of 1 pixel counts. About an erroneous block, an error is detected by methods, such as a parity check, as for example easiest method. When an error rate exceeds a constant level, the basis by which the generation copy was carried out is judged. If an error rate is below a constant level, password information will be acquired from the data of 1-pixel width by a majority method etc. It may be made to perform detection of this access information at the time of a PURISU can.

[0103]Next, postscript copy mode is explained with reference to the flow chart of drawing 10. Suppose that a certain information is added to the manuscript obtained by the already explained original copy mode. For example, the manuscript obtained by original copy mode is circulation, and suppose that a seal and a variety of information are added to this circulation. In this case, if the postscript manuscript which received the postscript is copied in original copy mode, an original manuscript without postscript information will be obtained. Then, such a problem is solved in this postscript copy mode.

[0104]First, the manuscript picture set to the prescribed position of the manuscript stand 4 is read by the scanner part 1 (ST140). The image data gained in connection with reading of this manuscript is changed into YMCK image data by the convert-colors part 36a, the image quality control circuit 36b, and the gradation processing circuit 36c. This YMCK image data is compressed by the compression extension part 36e, and is saved at the page memory 38 (ST142).

[0105]On the other hand, access information is extracted from the image data gained by the scanner part 1 (ST144). When access information cannot be extracted, (ST146, NO), and an error message are displayed on the liquid crystal display section 42 (ST162). Completion of extraction



of access information will analyze the extracted access information (ST148). (ST146, YES) And access permit decision processing according to the security level set up beforehand is performed (ST150). The access permit decision processing according to this security level shall be explained in detail later, and detailed explanation is omitted here.

[0106]When access is not permitted by access permit decision processing (ST152, NO), an error message is displayed on the liquid crystal display section 42 (ST162). When access is permitted by access permit decision processing (ST152, YES), directions of the file search based on access information are outputted towards a printer server (PC3) (ST154).

[0107]The access information analyzed from the image forming device to PC3 is transmitted in file search. In PC3, a search of a file is performed based on this transmitted access information. In PC3, when the target file is not found, access information is transmitted to PC1 and a search of the file made into the purpose in PC1 is performed. If the target file is found, the image data generated from the access information of this file and this file will be transmitted to an image forming device. In the image forming device side, if image data is received (ST156, YES), this received image data will be compressed by the compression extension part 36e. Overwrite record of this compressed image data is carried out on the image data saved by ST142 at the page memory 38 (ST158).

[0108]The expansion process of the image data generated by overwrite record of ST158 is carried out by the compression extension part 36e, and image formation processing is performed based on this image data by which the expansion process was carried out (ST160). When the image data corresponding to the transmitted access information is not received, an error message is displayed on (ST156, NO), and a liquid crystal display section (ST162). When image formation processing of ST160 is performed, in connection with this image formation processing, the printing tube \*\* file of PC3 thru/or PC1 is updated.

[0109]It becomes possible to obtain the manuscript which has the image quality of an original copy and the level and to which postscript information was added by this postscript copy mode. Next, postscript information filing mode is explained with reference to the flow chart of drawing 11. This postscript information filing mode is the mode in which relate postscript information with an original file and it is saved.

[0110]First, the manuscript picture set to the prescribed position of the manuscript stand 4 is read by the scanner part 1 (ST170). The image data gained in connection with reading of this manuscript is changed into YMCK image data by the convert-colors part 36a, the image quality control circuit 36b, and the gradation processing circuit 36c. This YMCK image data is compressed by the compression extension part 36e, and is saved at the page memory 38 (ST172).

[0111]On the other hand, access information is extracted from the image data gained by the scanner part 1 (ST174). When access information cannot be extracted, (S176, NO), and an error message are displayed on the liquid crystal display section 42 (ST198). Completion of extraction of access information will analyze the extracted access information (ST178). (ST176, YES) And access permit decision processing according to the security level set up beforehand is performed (ST180). The access permit decision processing according to this security level shall be explained in detail later, and detailed explanation is omitted here.

[0112]When access is not permitted by access permit decision processing (ST182, NO), an error message is displayed on the liquid crystal display section 42 (ST198). When access is permitted by access permit decision processing (ST182, YES), directions of the file search based on access information are outputted towards a printer server (PC3) (ST184).

[0113]The access information analyzed from the image forming device to PC3 is transmitted in



file search. In PC3, a search of a file is performed based on this transmitted access information. In PC3, when the target file is not found, access information is transmitted to PC1 and a search of the file made into the purpose in PC1 is performed. If the target file is found, the image data generated from the access information of this file and this file will be transmitted to an image forming device. In the image forming device side, reception of image data will send this received image data to the compression extension part 36e (ST188). (ST186, YES) The image data sent to this compression extension part 36e is compared with the image data saved by ST172 at the page memory 38, and a difference value is computed (ST190). And an isolated point solvent wiping removal is performed to the difference value image data equivalent to this computed difference value (ST192). Compression processing is performed to the difference value image data to which this isolated point solvent wiping removal was performed (ST194). The difference value image data to which this compression processing was performed is saved PC1 thru/or PC3 as pertinent information on the file which the access information analyzed by ST178 shows (ST196). Existence of difference value image data is recorded on a printing tube \*\* file.

[0114]It relates with an original file and this postscript information filing mode enables it to manage postscript information with small capacity extremely. It may be made to guard release of correlation with a password so that this postscript information filing mode cannot cancel easily relation of the image data related with the original file.

[0115]Next, with reference to the flow chart of drawing 12, the access permit decision processing according to a security level is explained. When the security level 1 is set as the image forming device, access is permitted on condition of (ST200), address information, file name information, and password information for ID being checked. When it explains concretely, address information and file name information can be analyzed (ST202, YES), and there is the necessity that the degree of image quality deterioration of a password (error rate) is below a predetermined value (ST204, YES) out of the acquired access information. ID inputted to the demand (ST210) of ID needs to be in agreement with already registered ID (ST212, YES). In the security level 1, it restricts to the time when these conditions were fulfilled, and access is permitted (ST214).

[0116]Evaluation of the degree of image quality deterioration of a password is for judging whether it is what has an original manuscript. That is, as a result of this evaluation, when the degree of image quality deterioration is below a predetermined value, it is judged that a manuscript is original, and when the degree of image quality deterioration exceeds a predetermined value, it is judged that the generation copy of the manuscript is carried out. Incidentally, the original copy said here is a manuscript obtained by the manuscript obtained by an original printing mode, or original copy mode. One generation copy is a manuscript obtained by normal copy mode.

[0117]When the security level 2 is set as the image forming device, access is permitted on condition of (ST206, YES), address information, and file name information for ID being checked. If it explains concretely, address information and file name information analyze out of the acquired access information (ST208, YES). ID inputted to the demand (ST210) of ID needs to be in agreement with already registered ID (ST212, YES). In the security level 2, it restricts to the time when these conditions were fulfilled, and access is permitted (ST214).

[0118]When the security level 3 is set as the image forming device, access is permitted on condition that (ST216, YES), address information, file name information, and password information are checked. If it explains concretely, address information and file name information can be analyzed out of the acquired access information (ST218, YES), and the degree of image

quality deterioration of a password (error rate) needs to be below a predetermined value (ST220, YES). In the security level 3, it restricts to the time when these conditions were fulfilled, and access is permitted (ST228).

[0119]When the security level 4 is set as the image forming device, access is permitted on condition that (ST222, YES), address information, and file name information are checked. If it explains concretely, address information and file name information analyze out of the acquired access information (ST224, YES). In the security level 4, it restricts to the time when these conditions were fulfilled, and access is permitted (ST228).

[0120]It becomes possible to provide the outstanding security by the access permit decision processing according to this security level. Therefore, it becomes possible to prevent the original copy contrary to the volition of the owner of an original file.

[0121]

[Effect of the Invention]According to this invention, the following image forming system can be provided.

(1) The image forming system which can obtain the substantially same manuscript as an original manuscript by the handiness of copy feeling.

[0122](2) The image forming system which can prevent the flood of the substantially same manuscript as an original manuscript contrary to the original manuscript maker's volition.

(3) The image forming system which can obtain the manuscript in which the information which is the substantially same manuscript as an original manuscript, and was added to the original manuscript was reflected.

(4) The image forming system which it is related and can manage the information added to an original manuscript and this original manuscript.

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## CLAIMS

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[Claim(s)]

[Claim 1]An image forming system comprising:

A file storing means which stores a file.

The 1st picture output means that outputs a picture which adds access information for accessing a file stored in this file storing means, and is formed based on this file.

A reading means which reads optically a picture outputted by this 1st picture output means, and outputs image data.

The 2nd picture output means that outputs a picture which reads a file stored in said file storing means based on access information extracted by extraction means to extract access information out of image data outputted from this reading means, and this extraction means, and is formed based on this file.

[Claim 2]An image forming system comprising:

A file storing means which stores a file.

The 1st picture output means that outputs a picture which adds access information for accessing a file stored in this file storing means, and is formed based on this file.

A reading means which reads optically a picture outputted by this 1st picture output means, and outputs image data.

An image data storing means which memorizes image data outputted from this reading means,

An extraction means to extract access information out of image data memorized by this image

data storing means, Based on access information extracted by this extraction means, a file stored in said file storing means is read, The 2nd picture output means that outputs a picture formed based on image data which carries out overwrite of the image data formed based on this file on image data memorized by said image data storing means, and is obtained as a result of this overwrite.

[Claim 3]The image forming system according to claim 1 or 2, wherein said 1st picture output means outputs said access information in the state with difficult recognition visually.

[Claim 4]The image forming system according to claim 1 or 2, wherein said 1st picture output means outputs said access information with a predetermined print rate.

[Claim 5]The image forming system according to claim 1 or 2, wherein said 1st picture output means outputs said access information to about four sides of a paper.

[Claim 6]Said 2nd picture output means reads a file stored in said file storing means based on access information extracted by said extraction means, and access information for accessing this file is added, The image forming system according to claim 1 outputting a picture formed based on this file.

[Claim 7]Said 2nd picture output means based on access information extracted by said extraction means, Read a file stored in said file storing means, and overwrite of the image data formed based on this file is carried out on image data memorized by said image data storing means, The image forming system according to claim 2 adding access information for accessing this file, and outputting image data obtained as a result of this overwrite.

[Claim 8]The image forming system comprising according to claim 2:

Image data memorized by said image data storing means.

A control means which relates with this file image data which compares image data formed based on a file read based on access information extracted from this image data, and is equivalent to a difference between both-images data, and makes it memorize.

[Claim 9]The image forming system according to claim 1 or 2, wherein said access information includes address information which shows a storage location of a file, and file name information which shows a file name.

[Claim 10]The image forming system according to claim 1 or 2, wherein said access information includes address information which shows a storage location of a file, file name information which shows a file name, and password information which shows a password.

[Claim 11]The image forming system according to claim 10, wherein said 1st picture output means outputs said password information included in said access information by the minimum pixel unit.

[Claim 12]The degree of image quality deterioration of password information included in access information extracted by said extraction means is evaluated, The image forming system according to claim 10 provided with a control means which restricts when read-out of a file stored in said file storing means is permitted from judgment based on a result of this evaluation, and performs an output of a picture by said 2nd image forming means.

[Claim 13]The image forming system comprising according to claim 1 or 2:

An identification information registration means to receive registration of identification information and to register this received identification information.

An identification information input receptionist means to receive an input of identification information.

Identification information registered into said identification information registration means.  
A control means which restricts when identification information received by said identification information input receptionist means is in agreement, and performs an output of a picture by said the last 2nd image forming means.

[Claim 14]The image forming system comprising according to claim 10:

An identification information registration means to receive registration of identification information and to register this received identification information.

An identification information input receptionist means to receive an input of identification information.

Identification information which the degree of image quality deterioration of password information included in access information extracted by said extraction means was evaluated, and read-out of a file stored in said file storing means was permitted by the judgment based on a result of this evaluation, and was registered into said identification information registration means.

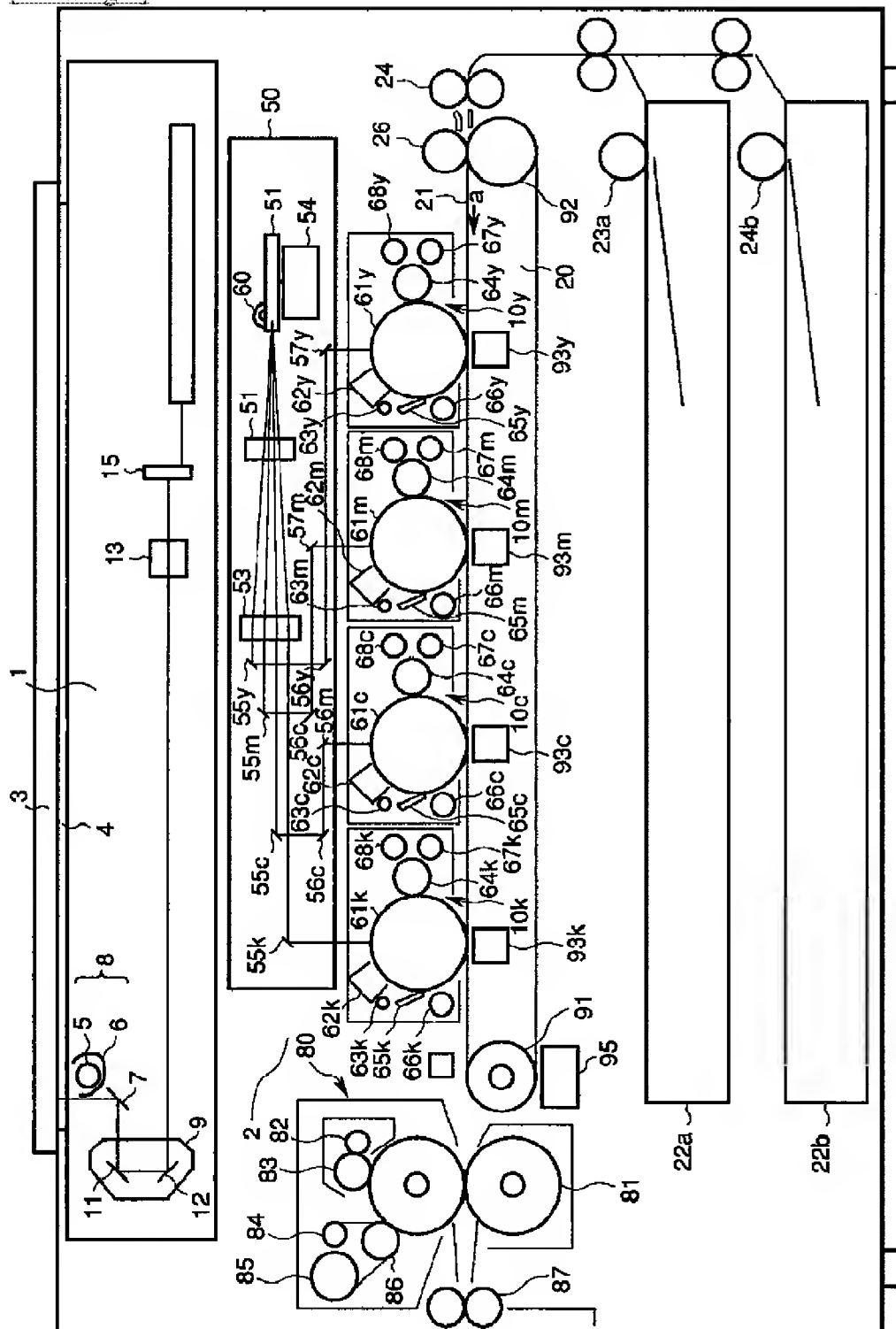
A control means which restricts when identification information received by said identification information input receptionist means is in agreement, and performs an output of a picture by said the last 2nd image forming means.

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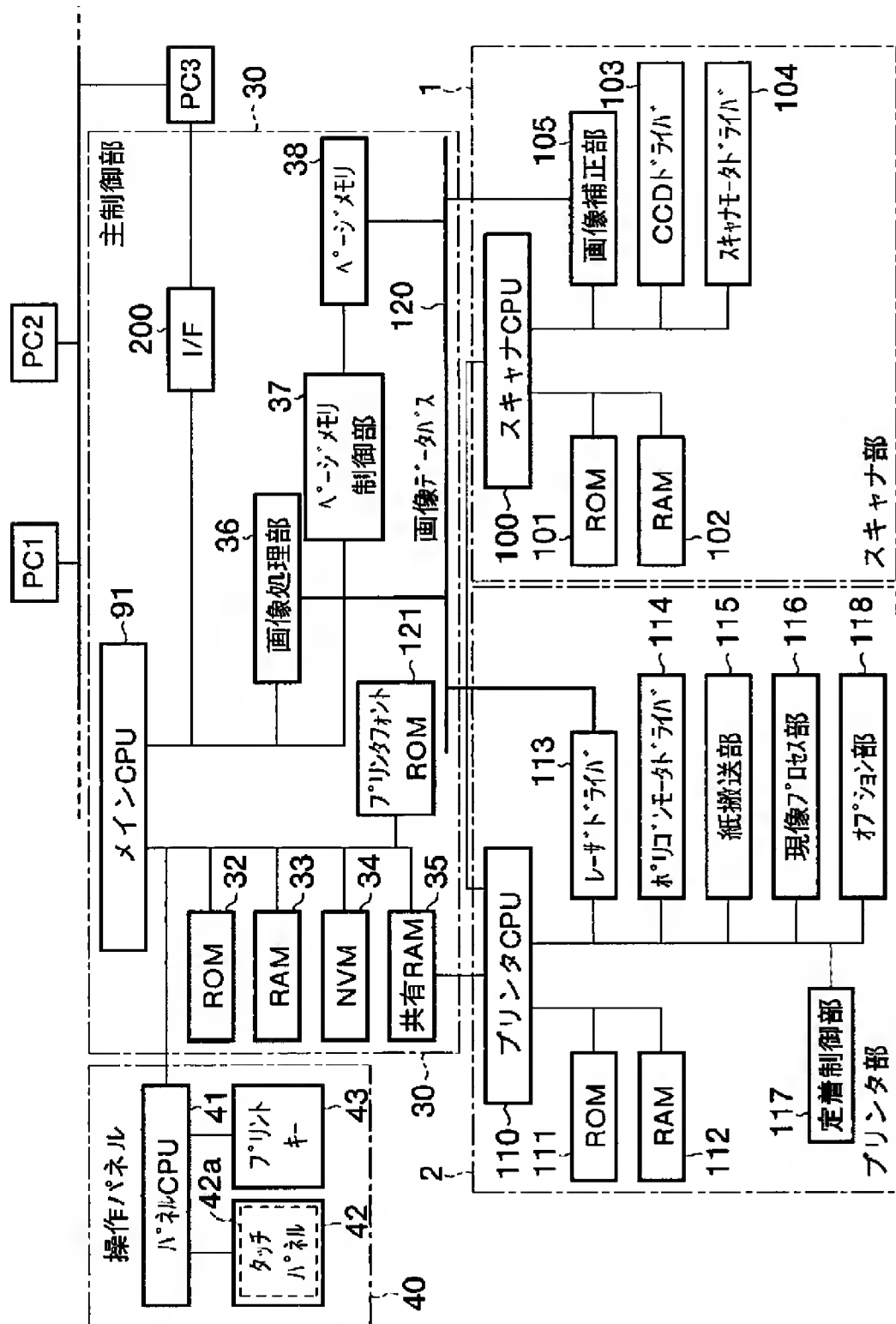
## **DRAWINGS**

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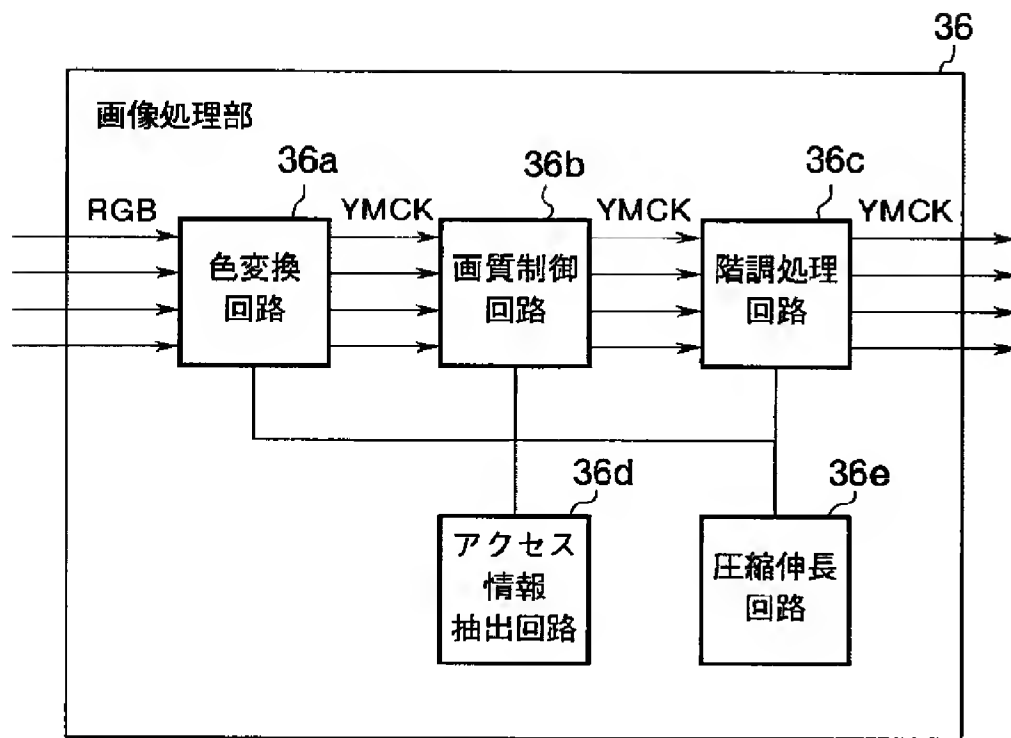
[Drawing 1]



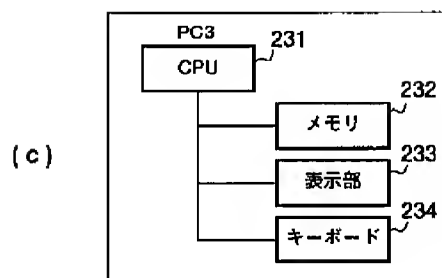
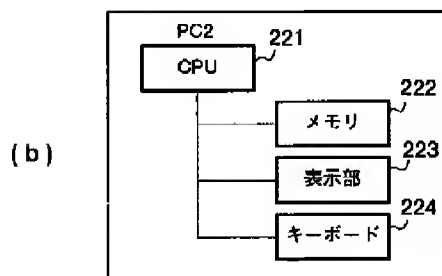
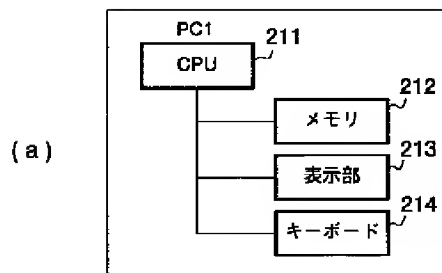
[Drawing 2]



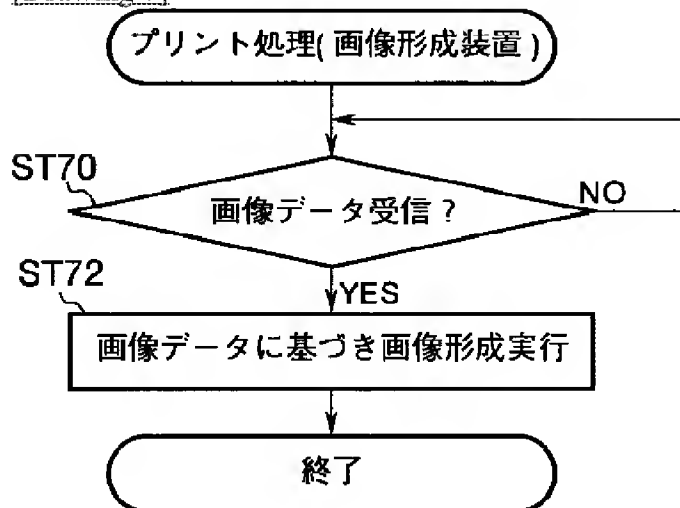
[Drawing 3]



[Drawing 4]

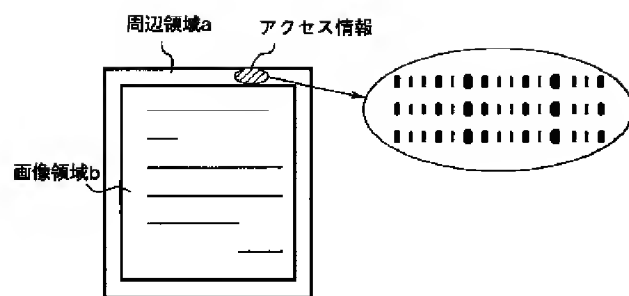


[Drawing 7]

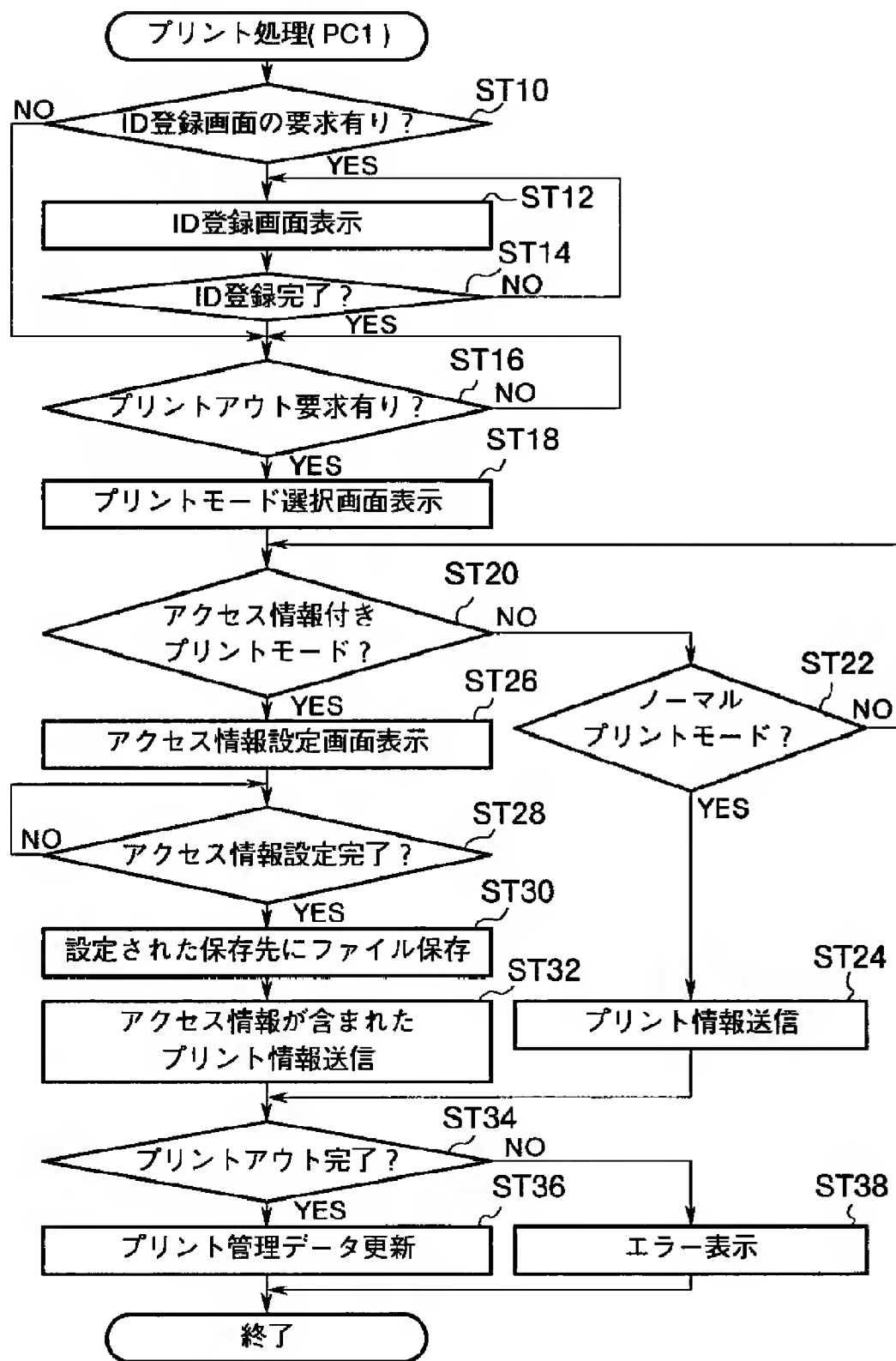


[Drawing 13]

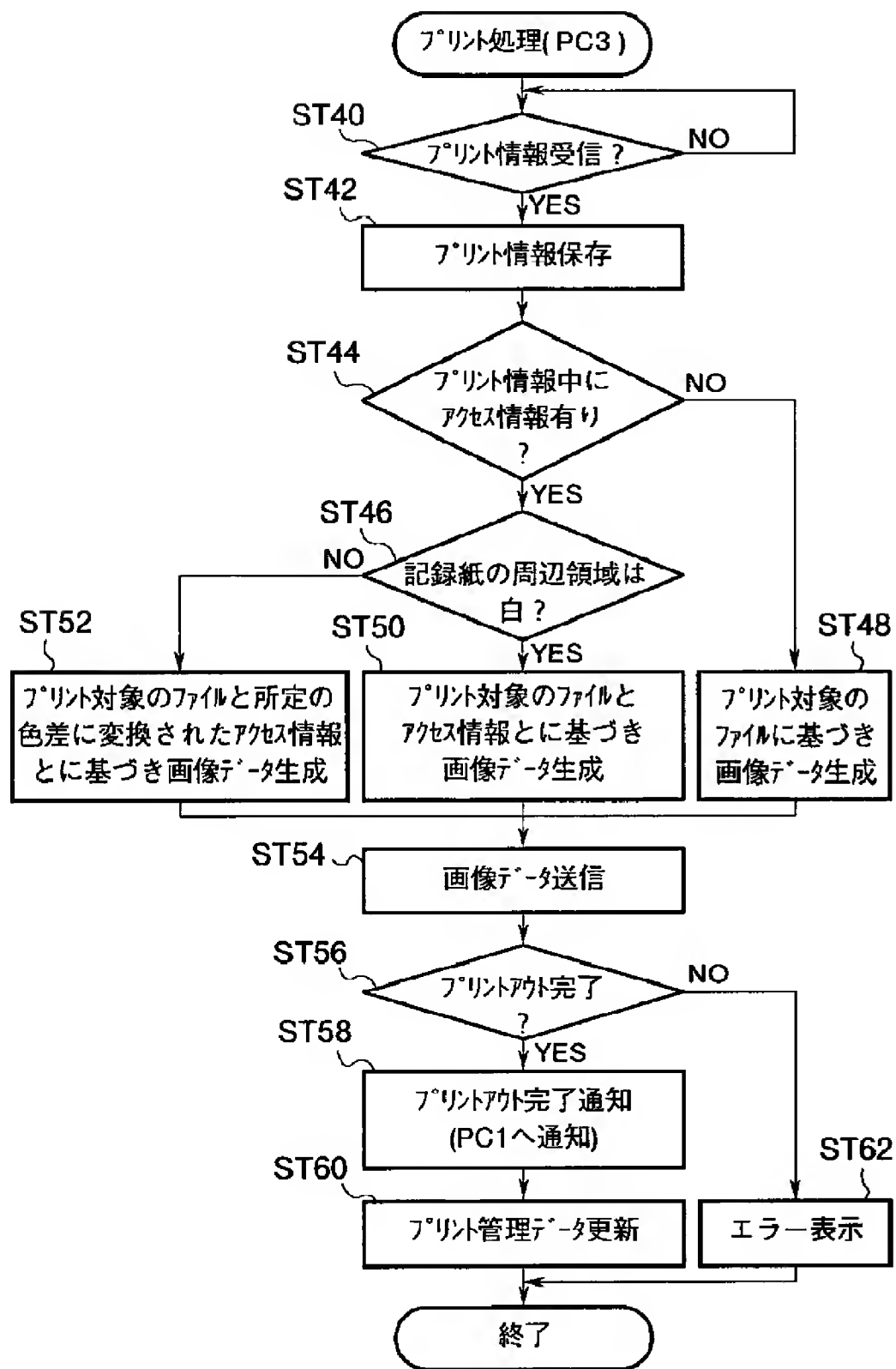




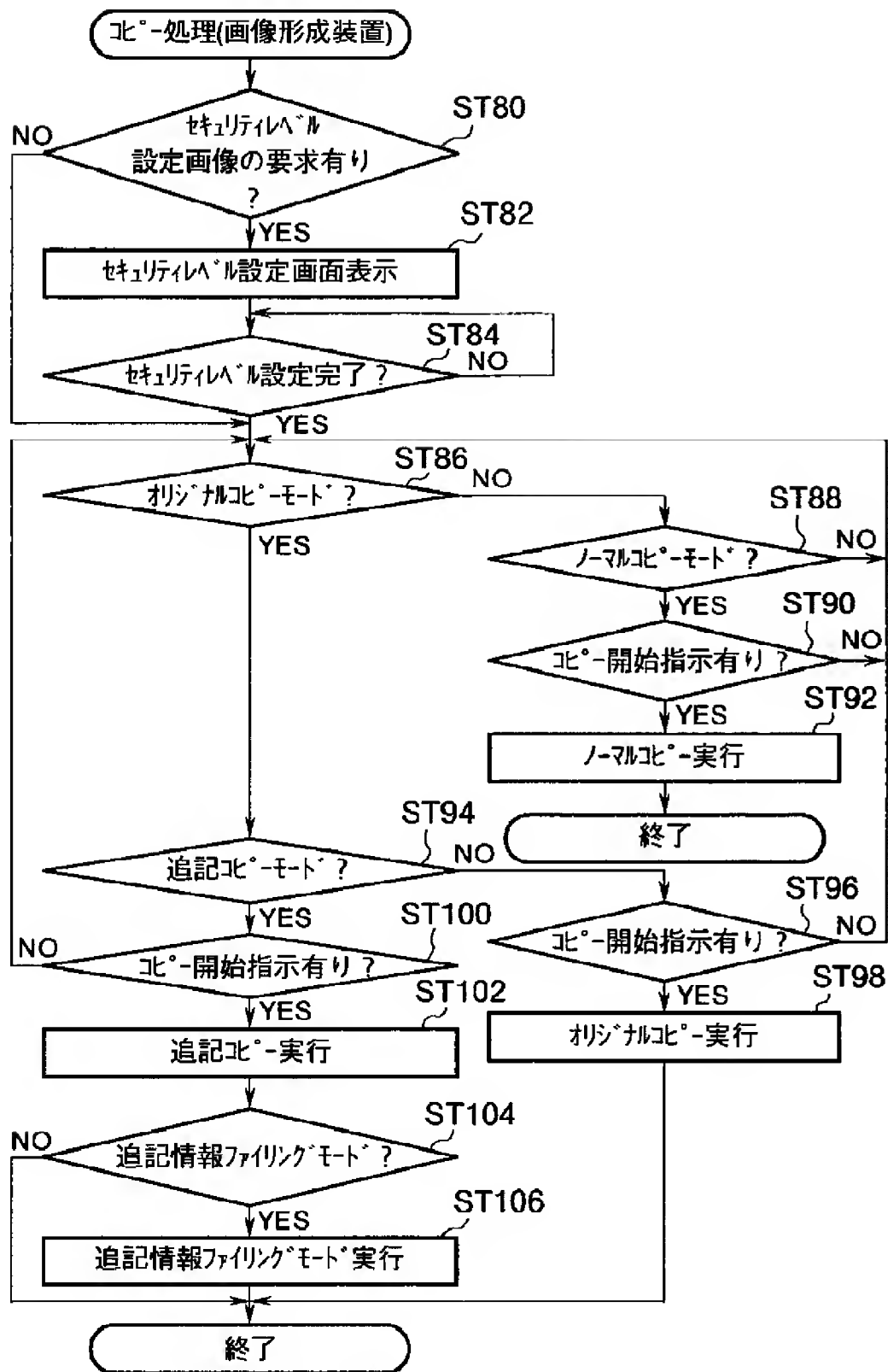
[Drawing 5]



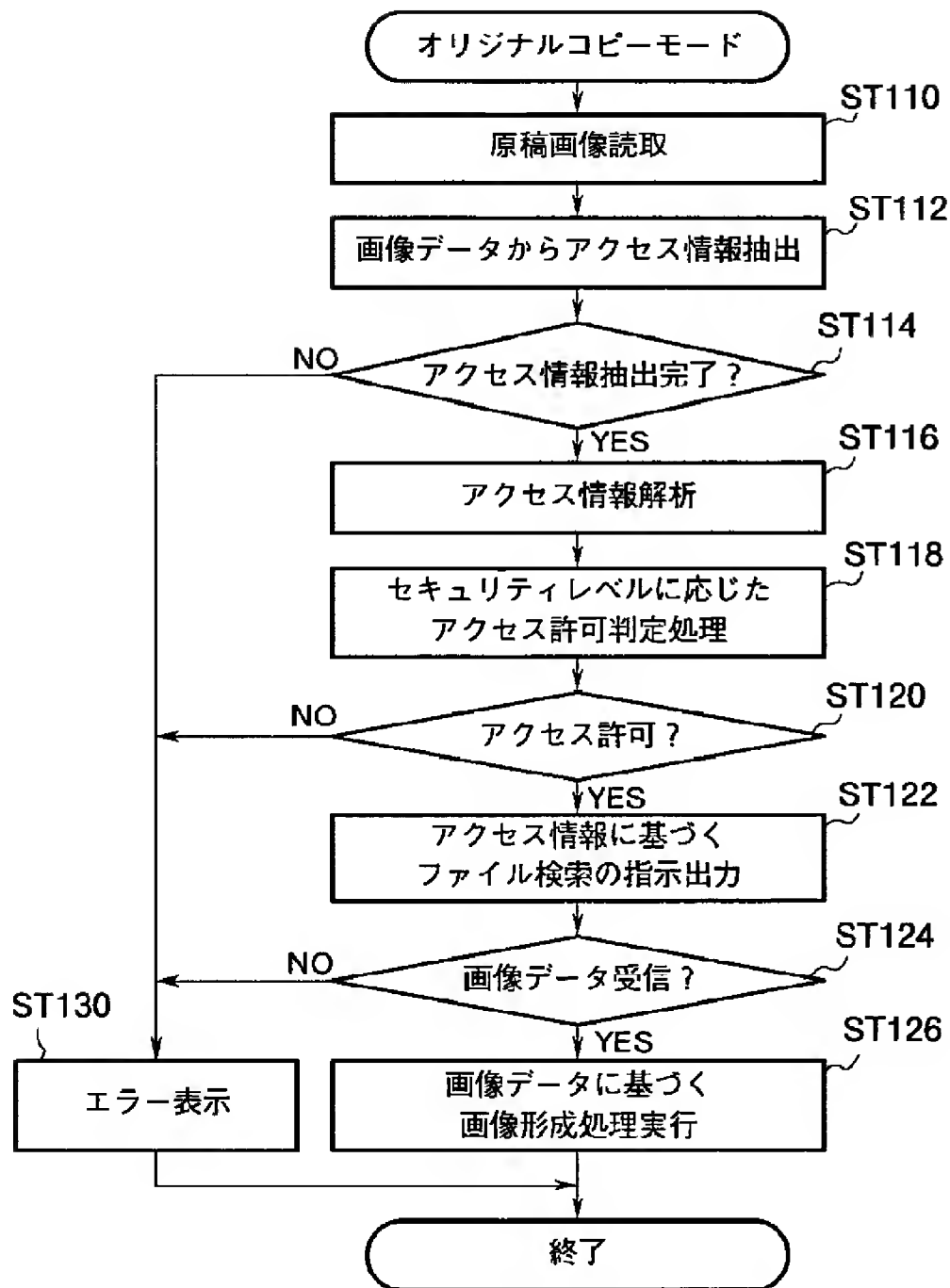
[Drawing 6]



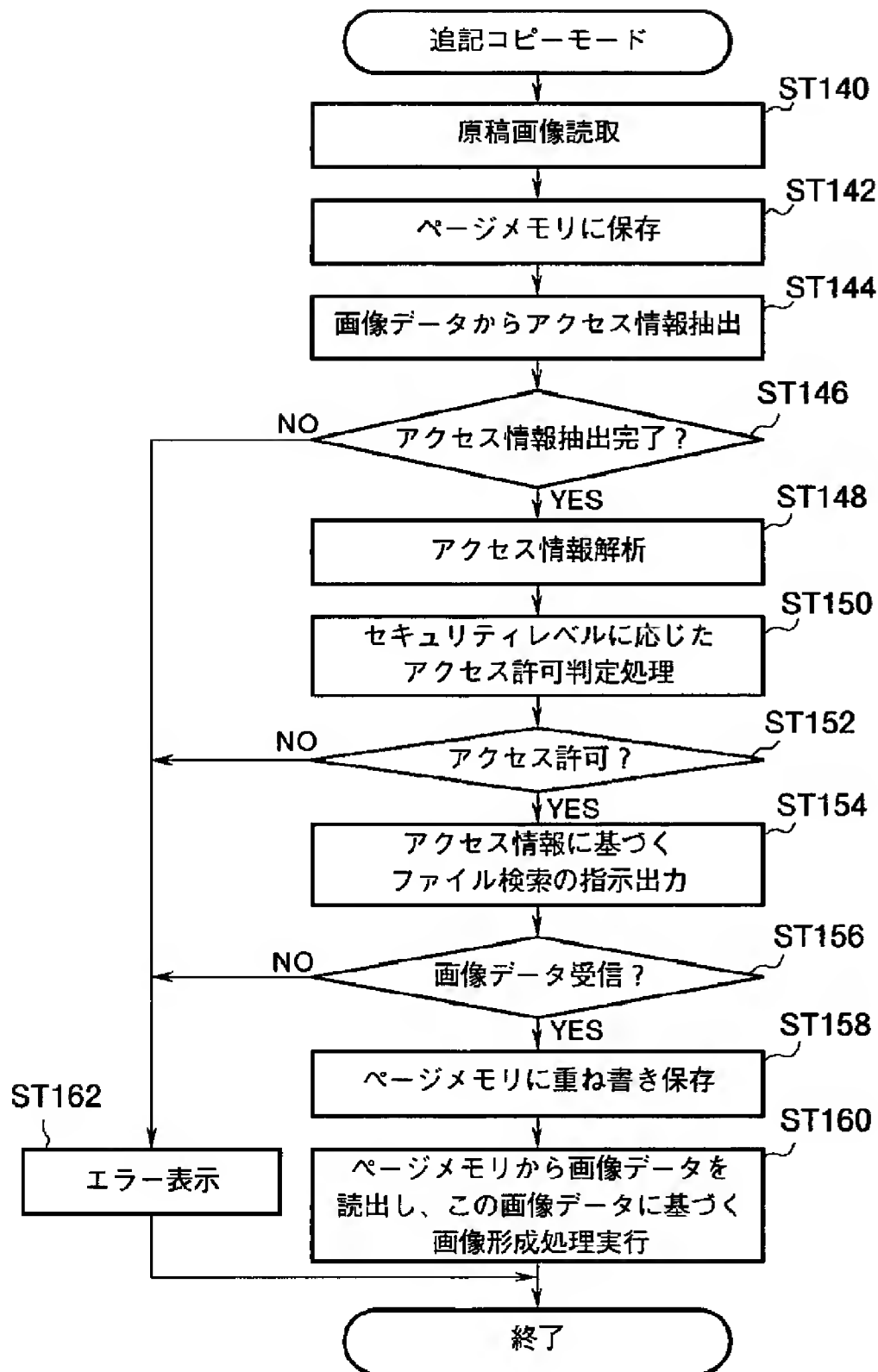
[Drawing 8]



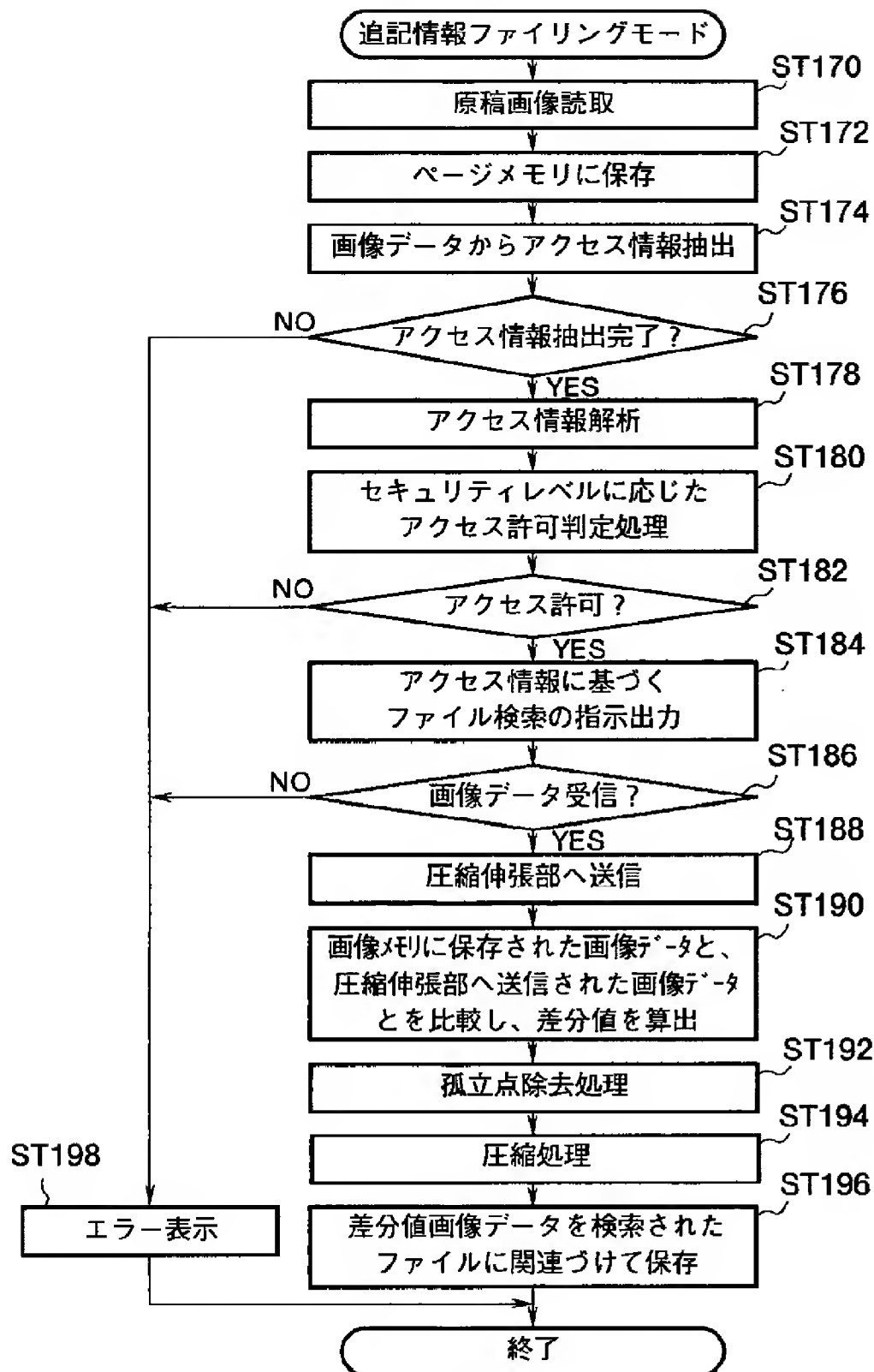
[Drawing 9]



[Drawing 10]



[Drawing 11]



[Drawing 12]

